COIL AERIAL SATISFACTORY TO RADIO ENTHUSIASTS IN APARTMENT HOUSES

AMATEURS GRASP AT SUBSTITUTE FOR OUTDOOR ANTENNA

Many Stages of Amplification Needed to Make Loops Equal.

LIGHT WIRES FAIL

Landlords' Rules Interfere Seriously With Roof Equipment.

Much has been said lately about the bother of the outdoor antenna, and many radio receivers, especially those in apartment houses where landlords' rules are obstacles to be overcome, have been only too ready to grasp at a more easily installed substitute. The coil aerial is a bona fide substitute, but of course it requires several stages of amplification before it becomes electrically the equal of the ordinary elevated antenna. When the idea of using the ordinary lighting wires as an antenna was suggested, many were ready to give this new antenna a trial—and a number of these have been sadly disappointed.

In practically no apartment house can the lighting wires be a very efficient antenna, because throughout their whole length, from the lighting company's substation to the lamp socket, they are either actually underground or else installed in a grounded iron pipe or metallic casing. Such a wiring system can take comparatively little energy from the advancing radio wave and so can give but little signal. On the other hand dwellers in the suburbs, where the electric wires are installed overhead on poles, may possibly get very strong signals from their lighting system, depending somewhat upon the style of wiring used in the house.

The undergrounded side of the wiring system should be used to pick up the radio signal, but this wire must not be connected directly to the receiving set as a short circuit is almost sure to result, burning out house fuses and quite likely damaging the radio set. The special plugs sold for the purpose of using the lighting wires for antennas are fitted with condensers which will let through whatever radio currents there may be on the wires and still prevent the lighting current from leaking to the ground and damaging the apparatus. The plugs sometimes used for this purpose have cheap paper condensers in them, which may or may not give sufficient protection from the lighting current; only those plugs which have been subjected to a high voltage test should be used.—Prof. J. H. Morecroft, in Radio Broadcast for October.

ARMSTRONG'S PLAN CAUSES WHISTLING

Regenerative Receiver Waves Conflict With Those of Broadcaster.

As one listens nowadays for the evening concert, he is continually bothered by whistling noises coming from his receiver, generally, it seems, at a critical point in the program. Just as the singer endeavors to show the radio audience how well her voice can execute a pianissimo passage, a series of peeps (of which fortunately, she is not aware), spoils the whole effect.

These whistling interruptions are due to some regenerative receiving circuit in the neighborhood of the listener, radiating from its antenna continuous-wave power which, combined with the power sent out from the broadcast station, produces a disagreeable beat note in other receiving sets in the vicinity.

As more receiving sets are installed, the nuisance from this source increases. This trouble must be controlled and stopped in some way either by the good sense of the operators or by requiring that receiving sets shall not be allowed which are capable of oscillating at the frequencies used for broadcasting. If Armstrong's super-regenerative idea is used by an appreciable number of receivers, on elevated antennas, the trouble will be immeasurably worse.

X-RAY DISTORTS WAVES OF RADIO

k in a radio shop was trying atch a concert for a prospective customer. Instead of the music a horribly harsh, sound came from the horn. s an X-ray picture being the clerk explained. "The waves are the same as those of The worst part of it is that e of all lengths and you ine them out. The only do is to wait until the picaken. Fortunately, they do n take X-rays at nights, e concerts are given."

New York Hears Ireland.

waves from Queenstown, were amplified in New York with such success that they l the proceedings of the Court in a building opporeceiving station.

bles Pool Interests.

ommercial Cable and Postal h systems recently entered contract agreement with American Cable Company they will pool interests in traffic.

Use Radio to Battle Crime

New York Headquarters Broadcasting Station.

Every police precinct and station in New York soon will be equipped with the latest radio apparatus for broadcasting and receiving departmental information. A powerful set already has been installed at headquarters.

Broadcasting Programs, Dates and Wavelengths for This Week.

LOCAL STATIONS DAILY EXCEPT SUNDAY.
Eastern Standard Time.

NAA—NAVAL RADIO STATION.
5,950 Meters, C. W. (Arc).

8:45 to 9 a. m.—Live stock receipts, markets.
10 a. m.—Weather forecasts for New England, Middle Atlantic and Southern States.
10:30 a. m.—Meteorological report.
11:15 to 11:20 a. m.—Hogs, Chicago and St. Louis.
11:20 to 11:40 a. m.—Fruit and vegetable shipments.
1:40 to 2:25 p. m.—Fruits and vegetables.
2:25 to 2:55 p. m.—Crops and special market news.
3:45 to 4 p. m.—Closing, live stock.
4:00 to 4:15 p. m.—Hay and feed markets. Monday, Wednesday, Friday.
5 p. m.—Weather.
5:30 to 6 p. m.—Marketgram.
2,650 Meters, Spark. (Sunday Also.)
12 m. and 10 p. m.—Time signal.
10:01 p. m.—Weather reports, ship orders, naval press news.

WWX—POSTOFFICE DEPARTMENT STATION.
All Radiophone 1,160 Meters.

10 a. m.—Weather report.
10:30 a. m.—Fruits and Vegetables. Local wholesale.
12:30 and 2:15 p. m.—Livestock, Chicago and St. Louis.
3 p. m.—Crop and special market report. Press.
3:30 p. m.—General fruits and vegetables. Press.
5 p. m.—Dairy products, New York and Chicago.
5:30 p. m.—Grain report. 7:30 p. m.—Livestock. 8 p. m.—Fruits and vegetables. Press. 9:45 p. m.—Weather report.

360 METERS UNLESS OTHERWISE NOTED.

WMU—Doubleday-Hill Electric Company.
4:30-5:30—Music. Baseball scores from The Herald.
WJH—White and Boyer.
1 to 2; 4 to 4:30 p. m.—Music and features.
WEAS—The Hecht Co.
3 to 4 p. m.—Music, Retail merchants reports.
MONDAY—WPM—Thomas J. Williams, Inc.
8 p. m.—Music.
TUESDAY—WJH—White and Boyer.
7:45 p. m.—Music.
WEDNESDAY AND FRIDAY—NOF.
8:30 p. m.—Music, 412 meters.
WEAS—The Hecht Co.
7 p. m.—Music and features.
THURSDAY—WMU.
8 p. m.—Music.
SATURDAY—WIAY — Woodward and Lothrop.

DISTANT STATIONS DAILY.

KDKA — Pittsburgh; WJZ—Newark; KYW—Chicago; WBZ—Springfield; WGI—Medford, Mass; WVP—Fort Wood. N. Y.; WGY—Schenectady, N. Y.; WSB—Atlanta, Ga. Also KQV—Doubleday-Hill Electric Co., Pittsburgh, Pa., on Monday, Wednesday and Thursday nights at 8:30 o'clock.

WATCH HERALD DAILY SCHEDULE FOR PROGRAM.

IN THE AIR TODAY.

WASHINGTON.

NAA—NAVAL RADIO STATION.
5,950 Meters, C. W. (Arc)

12 m. and 10 p. m.—Time signal.
10 p. m.—Weather reports, ship orders, naval press news.

360 METERS UNLESS OTHERWISE NOTED.
Eastern Standard Time.

WDM—Church of the Covenant, church services.

KDKA—PITTSBURGH

11 a. m.—Services of Point Breeze Presbyterian Church, Fifth and Penn avenues, Pittsburgh, Pa. Dr. P. H. Barker, minister.
2:45 p. m.—Children's Bible Story—"The Lady Who Looked Back."
3 p. m.—Radio Chapel at Westinghouse Station KDKA, conducted by Rev. F. J. Stinson, pastor the First Christian Church, McKeesport, Pa.
7:30 p. m.—Services of Calvary Episcopal Church, Shady avenue, Pittsburgh, Pa. Rev. E. J. Van Etten, rector. Harvey B. Gaul, organist.

KYW—CHICAGO.

3:30 p. m.—Radio chapel service.

WJZ—NEWARK, N. J.

4 p. m.—Radio chapel services, conducted by the Rev. Peter B. O. O'Connor, Queen of Peace R. C. Church, North Arlington, N. J. Sacred music by the Cathedral Quartet of St. Patrick's Cathedral, New York.
5:30 p. m.—Literary Vesper Services conducted by Edgar White Burrill on the subject of "The Quality of Leadership," which includes "He Knew Lincoln," I. M. Tarbell; "Captain, My Captain," W. Whitman, and "Anna Rutledge," E. L. Masters.
7.30 p. m.—Readings and Records from "The Bubble Books That Sing," by Ralph Mayhew.
8 p. m.—Adventure stories for boys and girls from 8 to 12. A magic chapter from "Solario, the Tailor," his tales of the magic double, by William Bowen, courtesy Macmillan Company.
8:30 p. m.—"A Romance of Oriental Rugs," by James A. Keillor.
8:45 p. m.—"Dad and the Boy and the Pocketbook," by William Byron Forbush, Ph. D., managing director of the National Honesty Bureau, an institution whose purpose is to encourage the training of boys and girls in the fundamental virtue of honesty in the school and home.
9 p. m.—Final baseball scores.
9:10 p. m.—Concert by the students of the New York American Conservatory of Music under the direction of August Fraencke and Carl Heim.
10:05 p. m.—Concert by Elizabeth Messer, soprano, and Prof. Nicholas Karambelas, violinist, accompanied at the piano by Edward J. Habig.
11:52 to 12 p. m.—Standard time signals from Arlington.
12:01 a. m.—Official weather forecast.

WGI—MEDFORD-HILLSIDE, MASS.

5 p. m.—Concert. Miss Doris B. Smith, soprano; Miss Mabelle E. Trask, contralto; Miss Elsie Luker, contralto, and accompanist, Miss Alma Rosengren. Violinist, all of the Copley Club Singers—Pauline H. Clark, teacher and manager.
1. a "How Beautiful Upon the Mountains!"
b. "Prayer Perfect"
c. "Minnetonka"
8:45 p. m.—Boston police reports, Boston police headquarters.
9 p. m.—Radio church service, conducted by G. Loring Briggs, Brookline selectman and director of the Boston Floating Hospital. Subject: "Shall We Enforce, or Shall We Nullify?"
Dr. W. F. Ames, tenor, of the Shubert Quartet of Boston, and Miss Jean Wood Lynch, contralto soloist, Winchester Congregational Church, Winchester, Mass., will assist in the music of the service.
9:40 p. m.—Concert program. Dr. W. F. Ames, tenor, and Miss Jean Wood Lynch, contralto, Miss Emma Parker at the piano. Program to be announced by radiophone.

RESOURCEFUL MAN PATCHES OUTFIT IN SPITE OF OBSTACLE

Homely Materials on Disabled Ship Used to Advantage.

The operator who can send out messages in the face of apparently insurmountable difficulties is worth his weight in gold, as is illustrated by the following authentic incident:

"I was sent home on another vessel, signing on as a wiper. The vessel ran out of fuel. No response being received to our S. O. S., I was called up from the engine room to see if I could assist the operator in establishing communication.

"Investigation showed that all units of the transmitting condensers were broken down. This was overcome by using in their place the series condensers in the short-wave circuit. An improvised radiation ammeter had to be constructed, and the antenna circuit direct coupled and returned. Communication was then established with a vessel which relayed our message to Havana, but soon the motor generator burned out beyond repair.

"To rig a transmitter again we had to change the power transformer from closed-core to open-core type, and to construct an electrolytic interrupter. Having no gasoline for a blow-torch, we had great difficulty in shaping heavy gauge glasses for the interrupter in the galley fire while the ship was rolling heavily, but we managed to get it working well enough to reestablish communication.

"Before assistance reached us we were out of glass tubes for the interrupter and had to close down until we rigged up one of the ship's large alarm buzzers for a transmitter. This worked well up to a distance of seventeen miles daylight, and communication was handled by relay.

"Two days later we were picked up and towed into port."

Britain Bans Sets Bought in U. S.

American Exporters Probably Will Lose Upward of Half Million.

LONDON, Sept. 23.—British legislation on preventing the import of any foreign wireless sets probably will catch American exporters to the tune of $500,000 unless some modification be obtained by American officials for apparatus which is already here or in transit. It was estimated today that fully $250,000 worth of wireless equipment from the United States is already in this country and as much more in transit.

London department stores had signified their willingness to take much of this, but since the adoption of the new British legislation they are afraid to accept it for fear they will be unable to sell it without violating the statute.

An investigation by American officials disclosed that the postmaster general has arbitrary powers under the bill to prevent the sale of this equipment, even though it was ordered and received prior to loss of freight charges both ways, the passage of the law, and the only hope lies in obtaining a special ruling to prevent the absolute

SPANISH SCHOOLS OPEN SECOND YEAR

The opening of the new Washington school of the Pan-American Schools of Spanish, 1414 Eye street, to which the public is invited this week, will mark the beginning of their second year in Washington. The date for the formal opening is set for October 2.

Students of the Pan-American Schools of Spanish are expected to take part in public dramatic performances during the coming season. Prof. Francisco A. Colon, from the Normal School University of Porto Rico, has become a valuable addition to the teaching staff. Prof. F. J. Hernandez will continue on the staff.

RADIO BROADCASTING PIONEER URGES GOVERNMENT CONTROL

H. P. Davis Says Service Should Be Restricted To Few Stations.

"You have asked, 'why should radiophone broadcasting be continued?' I cannot find any answer to that question as it seems so perfectly obvious to me that radiophone broadcasting has come to stay. Instead of answering I would ask:

"Who wants radio broadcasting stopped?

"What causes anyone to want broadcasting stopped?

"Is the present broadcasting service unsatisfactory?

"If it is unsatisfactory, this should not be a cause for discontinuing it, but rather a reason for greater effort at improvement."

In Close Touch With Radio.

It was evident at once from his replies that H. P. Davis, vice president of the Westinghouse Electric and Manufacturing Company, had been surprised that anyone should ask such a question. And little wonder, for the man who was responsible for organizing the first radiophone broadcasting station in the world—this pioneer station being KDKA at East Pittsburgh, Pa.—and the installing of three other stations (KYW at Chicago, Ill., WJZ at Newark, N. J., and WBZ at Springfield, Mass.) has been closely in touch with radio for the past two and a half years and had evidently detected no demand from the public for cessation of radiophone broadcasting activities.

Mr. Davis called attention to the wonderful and phenomenal spread of popular interest in radiophone broadcasting, and stated that he believed that this interest was not waning, but was increasing.

Has Become a Necessity.

"You have asked me why radiophone broadcasting should be continued," said Mr. Davis. "Perhaps I can answer your question best by saying that I can tell you many reasons why radiophone broadcasting should not be stopped."

"Broadcasting," he continued, "has become a public necessity and is rapidly lining itself up with other utilities such as the telephone, telegraph, electric light, moving pictures, etc., and just as these activities were crude in their beginnings but later refined to present-day conditions, so, in the same way, will radiophone broadcasting be developed and will cover and make available to all within hearing range, all worth-while activities of general interest to the public."

When Mr. Davis was asked if present conditions under which radiophone broadcasting was done, wherein a free service was given, would be continued, he stated in reply that a service of this character offered such benefits to mankind in general that a way would be found for its continuance.

Has Audience of Million.

"Why," he said, "consider the effect of discontinuing operations at our four stations! We believe that the combined audience of our four broadcasting stations is at least 1,000,000 every night in the week. It may be more. This estimate is based on the number of radio receivers which have been sold in the territories covered by these stations. What would be the result if all broadcasting stations stopped suddenly, with or without warning, entertaining and informing this vast audience? The effect upon this radio audience would be about the same as would occur if we took away some one or more of the utilities already referred to, such as the electric light, or the telephone—and we might go even further and say that it might be the same as stopping the newspapers and magazines, and the cutting off of amusements and communications. The effect probably right now would not be so vital as it will be later, as the service improves and grows—as it is bound to do."

Public Would Complain.

"What would happen if this occurred?" was asked of Mr. Davis.

"You know as well as I do," he said, "that there would be a public clamor that would quickly bring some solution of a State or Federal nature. I do not believe, however, that this can happen, as there is enough commercial possibility and good will in the business to make it worth while for those companies that can benefit from it, to continue the service."

"What is going to happen," Mr. Davis was asked, "if the Federal government continues its present policy of indiscriminately licensing all applicants to broadcast?"

"Now," said Mr. Davis, "you have touched on the real, vital point. It is my opinion that the public is not going to stay interested in, nor will it support an activity which does not at least approximate a real and satisfactory service. When it becomes possible, as it is now, for anyone with a broadcasting set, good, bad or indifferent, to claim space in the ether and to force themselves upon the listening public, without furnishing quality or a program of interest, the public is going to become disgusted and as a result interest will flag—for under circumstances of this kind worth-while service cannot be given by those companies or stations who have the ability and facility to provide a real service, because of this interference. This is a real danger, as will probably be recognized this fall when receiving conditions become better and hundreds of stations which have been licensed grow more active."

"Naturally, then, you must have some opinion in regard to a way that radio broadcasting should be developed."

To this, Mr. Davis replied, "I have. I have always maintained that, like the telephone and the telegraph, the service is inherently monopolistic in character, and to get the best results, the best programs, the greatest development, the activity should be confined to two or three companies of established reputation, having the necessary facilities and incentive to develop it; that they should be under Federal control and be allowed this privilege as long as they have acceptable service."

"As you object to the large number of stations the government has licensed, how many do you think sufficient?"

Mr. Davis answered that he believed five or six large, powerful, well located stations would be sufficient to cover this continent; that these stations should have separate wave bands, and that no other stations should be licensed that would in any way be capable of interfering with the transmission from these large powerful stations. For local purposes there should be a network of low-powered local stations on noninterfering wave bands. These stations should be capable of relaying the big stations' services for their immediate vicinity, and should be able to furnish for their locality matters of local interest.

Future Still Uncertain.

"Do you think, even with this program, that the few companies who would be given the broadcasting privileges by the government would guarantee permanency of service?"

"That is a hard question to answer," Mr. Davis replied, "but I think it quite probable they would. However, at this period in broadcasting history it is difficult to foresee the future evolution and development. I believe that if these central stations could be licensed, protected and organized, a great step forward would be made, and that it would become a matter of such public value, that endowments or Federal subsidies would be possible which would assist those responsible for the service to carry it on and to continue the development and research required to get the most value out of it."

"What about the Westinghouse Company?"

"I feel that, in answer to that, I can say for the Westinghouse Company that it will not stop a worthwhile service. We realize the great value of the accruing goodwill to the whole electrical industry which has come from radio broadcasting; and we further realize the responsibility we have undertaken, and it is our determination to do our share in the perfecting and developing of this important public service. So you see that there is really no reason why we should stop, as long as there is a service to the public to be fulfilled."

RADIO CRAZE HITS BRAZILIAN CAPITAL

The radiophone craze, while now becoming an old story in the United States and other countries, has just hit Rio Janeiro. A powerful broadcasting station has been erected and beside the government buildings, many commercial and private houses are being outfitted with receiving sets with which to "listen-in" on daily programs of concerts, news reports and lectures.

Other cities in the vicinity are also picking up the reports which have been heard as far as Sao Paulo. This is believed to be the first big broadcasting station to begin operation in South America.

GOTHAM PHYSICIAN DIAGNOSES BY RADIO

It was announced recently that a locomotive with several cars attached, was placed in operation by radio.

Prof. R. A. Fessenden is shortly to test his new device which carries pictures and voices through the air.

A new York doctor uses radio whereby energy exerted by the blood indicates the health of the creature from which the blood was drawn. His diagnosis of disease by radio is said to be very successful. Then we have debating by radio; radio compass for mariners, etc., all of which indicates the practically unlimited scope of radio.

Concerts Are Relayed.

During the past month concerts given in New York were relayed to the Westinghouse Electric (WJZ) station in Newark, N. J., where it broadcasted for the first time the great Philharmonic Orchestra.

Argentina May Broadcast.

Argentina is just beginning to take notice of radio telephony. Many receiving sets are being purchased and excellent programs arranged.

Questions and Answers

T. M. Q.—What is the address of William J. Murdock Company? Mass.

A.—Washington avenue, Chelsea.

Q. How is a battery connected to a crystal detector?

A.—With the ordinary crystal detector you do not require a battery, but with carborundum you do. A potentiometer is shunted across the battery, one end of the potentiometer going to the crystal and the movable arm of the potentiometer going to the telephones.

Q.—What causes signals to fade?

A.—If you mean distant signals no one knows. If you mean local stations it may be caused by their aerial swinging, or loose connections on either set.

Q. Can graphite be used in making a filament rheostat?

A.—You might use graphite rod.

F. M. F. Q.—I made a crystal set consisting of a 3-inch coil with ten 1-turn taps and ten 10-turn taps. I can not cut out interference with it and can only get one radiophone station. Can you tell me what is the trouble?

A.—The single tuning coil set is not selective. In other words, when several stations are working you will hear them all or only the loudest one, even though using slightly different wave lengths. To remedy this, suggest you build a loose coupler set and use two variable condensers with it.

H. B. H. Q.—Kindly puolish the name of some book store that could furnish me with a radio dictionary and the price of one having a complete knowledge of the words used in radio communication.

A.—Any good book store handles them. The price will be from 50 cents to $1.

P. H. Q.—I can not put an aerial on the roof. Can I hear KDKA with a loop aerial and two stages of amplifications?

A.—I do not think you will be able to pick them up unless you are favorably located. About the best you can do with such a set would be about 10 miles.

H. S. Q.—May a loading coil be used to increase the wave length?

A.—Yes, if you have a loose coupler you will have to load the secondary circuit too.

Q.—Is a variometer better for a loading inductance than a tapped coil?

A.—Yes, for short-wave lengths, because it has no loose connections, and you can get finer variations with it.

Q.—What is the advantage of using a condenser in series with the aerial?

A.—The wave length of the aerial can be tuned very closely. You can also get a better proportion of inductance and capacity which means selectivity.

OPERATES VACUUM TUBE ON ONE VOLT

A new vacuum tube, which can be operated on one volt of electric current, has been designed by the master mechanic of the Eiffel Tower radio station, Paris, France. The current can be supplied by an ordinary flashlight battery. This detector and amplifier tube has found its way to some of the American markets.

The same engineer has made a crystal detector receiving set capable of receiving messages from a distance of 500 miles. When these sets were first offered for sale in Paris a squad of gendarmes was called into action to keep the purchasers in order. Sufficient demand has been made for the new set to keep the factories busy for two years.